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THE TRAINING INFORMATION MANAGEMENT SYSTEM:
User's Manual for the
Electronic Clipboard System

Perceptronics

for

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| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The Training Information Management System (TIMS) is a computer-based system which can be used by Army personnel to collect and display training evaluation data during field training exercises, and to generate summary evaluation reports following the exercises. The TIMS has two major subsystems: the Electronic Clip- board System (ECS), and the Training Base Station (TBS). The ECS is a hand-held electronic field training and performance evaluation aid, which contains (over) | | |

ARI Research Note 86-7720. Abstract (continued)

and displays performance evaluation checklists and other associated information to allow a training evaluator to record the success or failure of a soldier in meeting the standards of performance for selected tasks. The TBS is a computer-based subsystem that maintains multiple checklist databases, transfers data to and from the ECS, and generates printed and displayed summaries of training performance. It is not field-portable, but resides at a fixed location (e.g., the unit headquarters).

This research note provides information on, and instructions for using, the Electronic Clipboard System.

The complete list of reports, of which this is volume 6, is as follows:

RN 86-85 THE TRAINING INFORMATION MANAGEMENT SYSTEM:

Phase II Final Report
Technical and Management Overview

RN 86-78 THE TRAINING INFORMATION MANAGEMENT SYSTEM:

Phase II Evaluation Report

RN 86-79 THE TRAINING INFORMATION MANAGEMENT SYSTEM:

Phase II Functional Specifications

RN 86-76 THE TRAINING INFORMATION MANAGEMENT SYSTEM:

User's Manual for the Training Base Station

RN 86-81 THE TRAINING INFORMATION MANAGEMENT SYSTEM:

Software Design Documentation for the
Training Base Station

RN 86-77 THE TRAINING INFORMATION MANAGEMENT SYSTEM:

User's Manual for the Electronic Clipboard System

RN 86-82 THE TRAINING INFORMATION MANAGEMENT SYSTEM:

Software/Firmware Design Documentation for the
Electronic Clipboard System

1.0 DOCUMENT PURPOSE AND SCOPE

The purpose of this document is to provide the information and instructions necessary for using the Electronic Clipboard Subsystem (ECS), one of the two major subsystems of the Training Information Management System (TIMS).

2.0 BACKGROUND

→ The TIMS →

The Training Information Management System (TIMS) is a computer-based system that can be used by Army personnel to collect and display training evaluation data during field training exercises, and to generate summary evaluation reports following the training exercises. The TIMS has two major subsystems. The first, called the Electronic Clipboard Subsystem (ECS), is a hand-held electronic field training and performance evaluation aid. The ECS contains and displays performance evaluation checklists and other associated information to allow a training evaluator to record the success or failure of a soldier in meeting the standards of performance for selected tasks.

The second subsystem is called the Training Base Station (TBS). The TBS is a computer-based subsystem that maintains multiple checklist databases, transfers data to/from the ECS, and generates printed and displayed summaries of training performance. The TBS is not a field-portable subsystem, but rather resides at a fixed location (e.g., the unit headquarters).

3.0 THE ECS

The following paragraphs describe the ECS hardware and operational capabilities.

3.1 ECS Hardware

The ECS is a custom built hand-held electronic field training and performance evaluation aid. It has a black and white text display. The ECS also has a touch sensitive screen that allows you to select options on the screen simply by touching the appropriate designated box (called a "touch area" or "touch key").

The display can be rear illuminated for nighttime use simply by pushing a button (for more information on nighttime illumination see paragraphs 3.4 and 3.5). The unit is powered by rechargeable batteries which will support eight hours of continuous use of the ECS within an 80 hour period when the nighttime illumination is not activated, and four hours of continuous use within an 80 hour period if the nighttime illumination is activated. Recharging of the batteries can be accomplished by attaching the ECS to the TBS or by using the field chargers supplied.

The ECS is approximately 7.55" (height) by 11.50" (width) by 1.88" (thickness). It weights approximatly 4.5 lbs.

The ECS is an "advanced development model" and thus, is not as rugged as an actual prototype or field unit might be. Thus, it is important to keep in mind the following:

- o The maximum operating temperature of the unit, under conditions of 95% humidity, is 104°F. Care should be taken to protect the unit from excessive heat, and it should not be stored in the direct sunlight or left in a closed vehicle parked in the sun.
- o The unit is not "hardened" and thus may be damaged if it is dropped, banged, or thrown.
- o The unit should not be subjected to excessive moisture. It should not be used in moderate to heavy rain or submerged in water.

3.2 Turning on the ECS

To activate the ECS, depress the white "ON" button located at the top left corner of the unit.

3.3 Turning Off the ECS

The ECS does not have an OFF switch. The ECS will automatically turn itself off after three minutes if no touch key is pressed. This function was implemented in order to conserve battery power.

3.4 Turning On the Display Light

A display light is available (to allow use of the ECS at night) and can be activated by depressing the red button labeled "LIGHT" in the upper right corner of the unit.

3.5 Turning Off the Display Light

No button is available to turn off the display light. The light will turn itself off automatically after 30 seconds unless the button is continuously depressed. This function was implemented in order to conserve battery power.

3.6 ECS Functions

3.6.1 Primary Operating Modes

The ECS supports six primary operating modes:

- o Identify the Evaluator
- o Identify the Student
- o Identify a Drill
- o Train on a Drill
- o Evaluate a Drill
- o Review Pass (1, 2, or 3)

The features of each mode are summarized in the paragraphs which follow.

3.6.1.1 "Identify the Evaluator" Mode - This mode is the "default" mode. That is, this is the mode which becomes active automatically when the ECS is first turned on after receiving information from the TBS. You will use this mode to identify yourself to the ECS. This mode has the following characteristics:

- o You can select this mode by touching the "ID EVAL" touch key.
- o The system is designed to accommodate the names of 10 evaluators .
- o Up to four evaluator names will be displayed on each screen. Additional names can be seen by touching the appropriate "arrow" (i.e., scroll) touch area.
- o You can select an evaluator name by touching the touch key to the left of the desired name. A flashing dot will be displayed in the touch area to indicate the selection that you have made. If you wish to select a new name simply touch the touch key to the left of the new name, and your selection will be changed.

3.6.1.2 "Identify the Student" Mode - You can use this mode to identify individual students who will be trained/evaluated. This mode has the following characteristics:

- o You can select this mode by touching the "ID THE STDNT" touch key.
- o The ECS will support up to 40 student names/numbers. Up to four names will be displayed on the screen at any given time. You can page to additional names by touching the appropriate "arrow" (i.e., scroll) touch area.
- o You can select a student's name by touching the touch key to the left of the desired name. A flashing dot will appear in the touch area to indicate the selection that you have made. If you wish to select a new name, simply touch the touch key to the left of the new name and your selection will be changed.

3.6.1.3 "Identify a Drill" Mode - This mode lists the available drills and allows you to select the particular one you wish to work with at any given time. Characteristics of this mode are described below:

- o You can select this mode by touching the "ID a Drill" touch key.
- o You can select a Drill by touching the touch area to the left of the line of text displaying the Drill title. A flashing dot will be displayed in the touch area to indicate the selection that you have made.
- o You can select another Drill simply by touching the "touch key" to the left of the new Drill title. The flashing dot will then appear to the left of the newly selected Drill and disappear from the left of the old Drill title.
- o You can scroll through the list of Drill titles by touching the appropriate "arrow" touch key. If you touch the "UP" arrow, the list will scroll DOWN to show more of the top of the list.
- o When you touch the "EVAL A DRILL" or "TRAIN A DRILL" keys, the drill that has been selected in this (i.e., the "ID A DRILL") mode will be displayed.

3.6.1.4 "Train on a Drill" Mode - This mode will be the primary mode that you use during a field training exercise when no evaluation is to be performed. Characteristics of this mode are described below:

- o The title of the Drill that is being trained will remain displayed at the top of the screen in the Title Area.
- o You will be able to scroll through the list of drill items by touching the appropriate "arrow" response area. If the "UP" arrow is touched, the list will scroll DOWN to show more of the top of the list.
- o Any item in the Drill can be displayed by scrolling until the item appears on the display.

3.6.1.5 "Evaluate a Drill" Mode - You will use this mode when a student is being evaluated. Characteristics of this mode are described below:

- o The number and title of the Drill that is being evaluated will always be displayed at the top of the screen in the Title Area.
- o When you touch either the "GO" or "NO GO" key a flashing dot will appear to indicate the selection which you have made.
- o Except when the first item is scored, immediately after a "GO" or "NO GO" for an item has been selected, the item list will move UP (scroll DOWN) one item. Usually (i.e., if no items have been skipped) this will cause the last evaluated item to move to the top of the list. The next item to be evaluated is then displayed as the second item in the list.
- o You can also choose to evaluate an item as "NOT SEEN" (i.e., you did not observe the performance of the item) or "NOT DONE" (i.e., the item was not performed).

You first touch the "GET MORE WORDS" touch key, and the evaluation key labels change. Then when you touch either the "NOT SEEN" or "NOT DONE" key, a flashing dot will appear to indicate the selection you have made. After a "NOT SEEN" or "NOT DONE" evaluation has been made, you can use the "GET MORE WORDS" key to return to the original "GO" "NO GO" touch keys.

- o You will be able to conduct three-pass evaluations using the ECS. That is, you will be able to evaluate students on up to three attempts or "passes" on any given item. When you first identify a soldier/student and a drill, and selects the "EVAL A DRILL" mode, you will be taken to the next unscored "pass". If this is the first pass evaluation of a given student on a given drill, then all "GO" "NO GO" and "NOT SEEN" scoring columns will be empty, and astericks will appear in the "NOT DONE" column for all items. If this is the second or third pass evaluation for a given student on a given drill, then the scores from the preceding evaluation will have been automatically loaded into the display so that you may see which items were previously passed or not passed, and may rescore any items desired. Student's scores for all three passes are retained in the ECS for subsequent uploading to the TBS.

3.6.1.6 "Review Pass" Mode - You may review a student's scores for any given drill, and any given "pass" through that drill, by using the "Review Pass" mode. Characteristics of this mode are as follows. Any time a student has been scored on a given pass through a drill, the number of the pass (i.e., 1, 2, or 3) will appear next to the student's name as displayed in the "ID THE STDNT" mode. Thus, you will be able to tell which students have been scored on a given number of passes for a given drill, and thus will know what data is available for review. After deciding which pass you wish to review, you may indicate your selection by using either the "REVIEW PASS 1", "REVIEW PASS 2" or the "REVIEW PASS 3" displayed touch keys.

1.6.2 Other ECS Functions

In addition to the six primary operating modes, the ECS also supports several other functions which are described briefly in the paragraphs which follow.

3.6.2.1 "Operating Time Remaining" Function

The ECS calculates the amount of operating time remaining on the batteries when you start operation with a full (eight hour) charge. It does so by counting down one minute of unit life for every minute you operate the ECS without the nighttime illumination activated, and two minutes of unit life for every minute you operate the ECS with the nighttime illumination activated. A display showing the operating time remaining in hours and minutes is provided in the top right corner of the ECS.

The ECS "Operating Time Remaining" function is reset to the maximum eight hours under the following conditions:

- o Every time the ECS is connected to the TBS (a full charge is assumed)
- o When the "Full Charge" button is depressed at the "Maintenance" screen on the ECS

When the Operating Time Remaining counter reaches zero, the ECS will automatically return to the "Maintenance" screen in preparation for data transfer/uploading to the TBS. No further scoring should be done with the ECS until existing data is transferred (i.e., uploaded to the TBS) and the unit is recharged.

3.6.2.2 Low Battery Shut Down Capability

In addition to the "Operating Time Remaining" function which prevents loss of scores by locking out further operation of the ECS when the counter reaches zero, an additional safety support function, the "Low Battery Shut Down" capability, has been implemented. Rather than depending upon a calculation of how much battery operating time is remaining based on an assumed full charge of eight hours, this capability actually measures the health of the battery and shuts the unit down when the battery power remaining is sufficient only to retain the device memory. Unlike the Operating Time Remaining calculation which can be "fooled" by a user who indicates the unit has a full charge when such is not the case (by depressing the "Full Charge" button at the "Maintenance" screen), this function cannot be circumvented. When the "Low Battery Power" function determines that memory is only sufficient to support the transfer/upload of existing scores, the system automatically returns to

the "Maintenance" screen and cannot be returned to operational status by simply depressing the "Full Charge" touch key.

3.6.2.3 Clock and Calendar Function

A display in the upper right corner of the ECS indicates the current date (month, day, year) and time (hours/minutes/seconds).

3.6.2.4 Stopwatch Function

A stopwatch is made available in the upper right corner of the ECS in the "Train on Drill" and "Evaluate a Drill" modes. This function allows for the convenient timing of training events in minutes and seconds. Times from this stopwatch are not recorded in the ECS. The stopwatch can be started, stopped, and reset by depressing the appropriate touch keys.

3.6.2.5 Maintenance Screen Functions

A "Maintenance" screen is accessible on the ECS from the "ID EVAL" screen. Four special ECS functions are, in turn, accessible from the "Maintenance" screen:

- o RAM Test
- o Display Test
- o Full Charge
- o Communications

Each of these functions will be described below.

3.6.2.5.1 RAM Test

By touching the "RAM Test" touch key on the "Maintenance" screen you can activate a test of the ECS memory. The results of the test (pass or fail) will be indicated on the screen. If the displayed result indicates that a problem exists, the ECS should not be used further, and should be turned in for repair.

3.6.2.5.2 Display Test

By touching the "Display Test" touch key on the "Maintenance" screen you can activate a test of the ECS display. The display will fill with characters (letters and numbers and other symbols) so that you can examine the display to see if there are any missing or distorted symbols. If you observe a problem with the display, do not use the ECS further, but turn it in for repair.

3.6.2.5.3 Full Charge Indicator

By touching the "Full Charge" touch key on the "Maintenance" screen you can indicate to the ECS when you have charged the unit to full charge in the field (i.e., by using a field charger instead of the charger on the TBS). Note that the ECS automatically assumes that a full (eight hour) charge has been obtained each time the unit is connected to the TBS. However, if a field charger is used, the ECS does not automatically know when charging has occurred, and thus you must use the "Full Charge" key to reset the Battery Operating Time Remaining counter to eight hours.

3.6.2.5.4 "Communication" Function

The ECS can receive initial condition information from the TBS or transfer collected student scores back to the ECS only when you put the system in the communications mode by using the "COMM" touch key on the TBS "Maintenance" screen. The communications cable which links the TBS to the ECS must also be connected before transfer of information between the TBS and ECS can occur (this cable attaches to the connector on the ECS labeled "RS-232/ BATT"). When communications between the TBS and ECS are complete, the ECS will automatically return to the "ID the Evaluator" screen.

If you accidentally put the system in the communications mode when you are not near the TBS and not planning to transfer/upload data, the only way to make the unit operational again is to use the hardware reset capability (see paragraph 3.6.2.5.5).

3.6.2.5.5 Hardware Reset Capability

As noted in paragraph 3.6.2.5.4 (above), if you accidentally put the ECS into the communications mode (by using the "COMM" touch key on the "Maintenance" screen) when you are not near the TBS and not planning to transfer/upload data, the only way you can return the unit to operational status is to use the hardware reset capability. This capability has been implemented as follows: Depress the ECS power "ON" button for three or four seconds (you will notice a dim flash on the display screen) and then release it. The ECS will reset. No data will be lost if a hardware reset is performed to recover the ECS from the communications mode.